

SR100-1

June 1989

Railway Age

...for the new age of railways and rail transit



Conrail Intermodal: Improving a winning game

The freight car goes higher-tech

Exploring the
"train control" market

Urban planners map
new commuter lines

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MARKET OUTLOOK

Equipment

Itel Rail: Ordered 150 73-foot center beam flatcars from Thrall Car for July-August delivery, at a cost of more than \$7 million. Earlier, Itel had acquired 300 similar cars from Thrall for serving lumber-industry customers. The latest order is intended to expand the Itel Pullman lease fleet and replace older cars on the Southern Railway of British Columbia, acquired last year by Itel.

Facilities

Bay Area Rapid Transit: Has drafted a Five Year Plan and Capital Improvement Program calling for the expenditure of \$2.9 billion to fund extensions, parking space expansions, system capacity expansion, and other improvements to the BART rail system.

Canadian National: Awarded a Stage II contract to ALK Associates, Inc. of Princeton for the development of a motive power information and management support system for its motive power control center in Montreal.

Chicago & North Western: Has begun a \$70-million, multi-year track improvement program for its east-west main line between Chicago and Fremont, Neb. The 1989 program, budgeted at \$18,000,000, will include installation of 27 miles of new 136-pound cwt. insertion of 179,600 cross-ties and surfacing of about 240 miles of track.

Municipality of Metropolitan Seattle: Awarded a contract to the Washington, D.C., firm of R.T. Banks & Associates to develop a final plan which will enable Seattle Metro to decide whether to establish commuter railroad service linking downtown Seattle with Puyallup, 32 miles to the south. Assisting Banks will be ITK Engineering Services of Philadelphia for locomotive and car design, JHK & Associates of Alexandria, Va., ridership forecasts, and three Seattle firms which will provide local expertise.

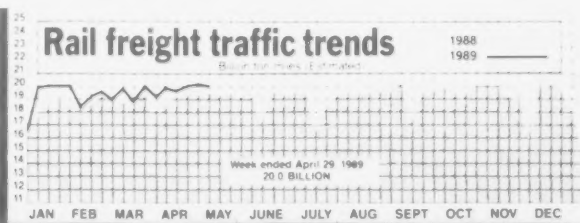
New York Department of Transportation: Awarded a contract to the joint venture design team of Andrews and Clark, Gibbs & Hill, and Vollmer Associates for a grade crossing elimination project in Mineola that will separate six roadway crossings from Long Island Rail Road traffic. Construction will begin in 1991.

Revenue freight carloadings

Commodity	May 6 week	Apr. 29 week	Apr. 22 week	Apr. 15 week
Grain	26,372	27,344	29,659	31,050
Other farm products	1,514	2,188	2,501	2,396
Metallic ores	21,031	22,909	21,385	21,414
Coal	126,563	124,863	128,045	128,629
Crushed stone, gravel and sand	16,660	16,819	16,326	15,388
Nonmetallic minerals	11,030	9,906	9,696	9,897
Grain mill products	10,299	10,343	10,152	10,240
Food and kindred products	8,699	8,995	8,843	8,513
Primary forest products	9,065	9,936	9,435	9,630
Lumber and wood products	6,766	7,279	6,882	6,734
Pulp, paper and allied products	10,195	10,688	10,427	10,224
Chemicals	28,681	30,176	30,272	29,260
Petroleum products	4,981	5,198	5,218	5,002
Stone, clay and glass products	10,515	10,843	11,126	10,518
Coke	5,505	5,192	5,728	6,113
Metals and products	10,104	10,634	9,897	9,956
Motor vehicles and equipment	21,467	22,199	21,872	22,540
Waste and scrap materials	8,989	9,696	9,387	9,489
Forwarder and shipper assn. traffic	17	11	6	5
All other carloads	7,310	7,624	7,344	6,980
Total Cars Loaded	345,763	352,845	354,201	353,978
% change from previous year	0	5	2.0	1.2
Cumulative total: 18 weeks		6,042,751		0.6
Estimated revenue ton-miles (billions)	19.7	20.0	20.1	20.0
% change from previous year	1.0	1.0	2.0	5
Total: 18 weeks	1988	1989		% change
	348.7	344.6		1.2

Intermodal traffic

	May 6	Apr. 29	Apr. 22	Apr. 15
Trucks	47,177	47,764	47,486	48,258
Intermodal	47,278	48,763	48,822	47,830
Total	113,290	114,541	113,308	114,088
% change from previous year	2	2	2	3.8
Cumulative total: 18 weeks		2,021,907		% change
				1.8



Source: Association of American Railroads

Freight cars

	DELIVERED		ORDERED		ON ORDER AND UNDELIVERED	
	1st quarter 1989	1st quarter 1988	1st quarter 1989	1st quarter 1988	Apr. 1 1989	Apr. 1 1988
Built new by carbuilders	7,286	4,457	11,040	7,209	19,707	12,692
Built new in RR shops	0	0	0	35	0	35
Built new—Total	7,286	4,457	11,040	7,244	19,707	12,727
Rebuilt	0	0	0	101	0	281
TOTAL	7,286	4,457	11,040	7,345	19,707	13,008
Locomotives (new and rebuilt)	82	84	N A	N A	148	120

Source: Transportation Div., AAR and American Railway Car Institute

slack action. But coal and grain don't complain much about ride quality, and so the justification for articulation of bulk-commodity cars will have more to do with reductions in wear-and-tear on equipment and in possible savings in materials and car components.

● **Improvements not just cosmetic.**

If there is one car-type where change has been less visible to the naked eye, it's probably the tank car—with the exception of the 800-car GATX Tank Train fleet. As one car builder puts it, the basics of the containment vessel, the tank, haven't changed all that much in 20 years or so. Changes that have taken place have largely been in the area of improving safety.

But the tank car manufacturers are seeing changes imposed by customers—especially in the petroleum, chemical and food industries—in connection with quality-improvement programs that many of them have adopted.

Some changes would probably be regarded as cosmetic. Some customers, one builder notes, are paying a lot more attention to exterior painting schemes—not just as protection for the car but in terms of projecting a quality image as their car goes rolling around the country.

But the improvements the major tank car builders, Union Tank and Trinity, have made recently are a lot more than skin-deep. Improved materials are going into the cars. On cars built by Union Tank to carry high-fructose corn syrup, for example, capacity has been increased and quality improved, not just in the interior coating but importantly in the use of stainless steel valving and other stainless steel appurtenances. Some what exotic grades of stainless are also showing up in cars being produced to handle specialty chemicals.

And at this point, Union Tank tends to look at its so-called "sandwich" car in effect, a Thermos bottle on wheels, as its most dynamic car—one that can be custom-tailored to meet individual customer requirements.

The best design has to be executed in the shop, however, and that's why Union Tank has been investing in computer-operated lathing machines, and in greater use of shop robotics in order to produce a more consistent product.

Approaching the midpoint of 1989, car builders without exception are looking at order books that have very few if any blank spots. And, while there have been fears that the surge in carbuilding activity would be held back by shortages in key components, such has not been the case.

The main concerns have had to do with castings and axles, as well as with basic steel. But, as Gunderson puts it, steel supplies have eased up, and any problems with castings and axles should be taken care of with the re-opening of ASE's plant in Illinois and the re-opening of the ex-Bethlehem Steel axle plant in Pennsylvania.

● **What HPIT accomplished.** Inevitably, in any consideration of higher-tech in the freight-car industry, attention turns to the recent High Performance Integral Train project of the AAR, and what it did or did not accomplish. And an individual who was close to HPIT from start to finish makes a few observations.

In the overall, the program greatly improved the ability to look at and analyze both technological and economic considerations at the rail industry level.

The analytical techniques used in HPIT evaluations were a big help in developing specifications for testing new and untried car designs—specifications aimed at making testing less costly and at getting successful designs into service more quickly.

HPIT heightened industry awareness, among railroads and manufacturers, of the potential in design improvement. It specifies were to be cited and near-term results measured. HPIT's accomplishments might be said to be concentrated in the further development of carless technology in work with the vertical isolation pad, and in testing of equipment with slackless drawbars.

Considering the effort that went into the program, some observers might look back critically and regard HPIT as much ado about not very much. That's hardly fair, and besides it's not accurate. Progress was made, and new technologies are being introduced, as a direct or indirect result of the attention sharply focused on new tech. And besides, in all things, safety and operating considerations have to be taken fully into account, and some things just simply shouldn't happen overnight.

And maybe it's not quite time to gift-wrap the last sledgehammer and send it off to the Smithsonian. But take it as guaranteed that the upward curve in freight car design and capability will continue. Customers are pushing railroads; railroads seem to be more actively pushing manufacturers; and manufacturers are not only responding quickly but acting with a high degree of initiative.

What it all adds up to is an impressive real and potential contribution of technology to railroad market share and profitability.

ECAP's car forecast:

What are the prospects, near-term, for freight-car manufacturers? In a word, the prospects are "constructive."

That's the conclusion reached by Economic Consulting & Planning, Inc., after an analysis of available rail-industry data coupled with ECAP's own extensive assessment of economic trends which are likely to affect rail traffic in the 1989-90 period.

Last year, deliveries of new freight cars added up to about 22,500 units. ECAP is forecasting deliveries of 29,500 cars this year and 34,500 cars in 1990.

Both future-delivery numbers are substantially higher than the estimates developed from the most recent member-survey by the American Railway Car Institute. After the averaging-out of responses, ARCI is looking at deliveries of 23,345 cars in 1989 and 27,590 cars in 1990. The ARCI forecast stretches through 1991 and for '91 the predicted total on deliveries, about 31,000, is lower than the total developed by ECAP for 1990.

ECAP's outlook analyses take a number of factors into account, including the state of the economy and its impact on traffic, the age and condition of the car fleet, and the effects of recent and continuing gains in equipment utilization. Among the conclusions reached by ECAP's Norma Pace, Peter M. Toja and Kenneth J. Kremer:

—Modest economic growth is in the offing for this year, to be followed not by a recession but by what ECAP calls "a soft landing" in 1990. This translates into a 1989 over-all increase of 1.5% in commodity carloadings, with coal and chemical traffic up by 4% and intermodal gaining by 3%. For next year, ECAP sees total loadings dropping by 1%, with intermodal loadings down by 2.5% "as industrial sector activity falters and imports weaken."

—The age of the fleet, ECAP believes, suggests the presence of "a modest replacement cycle" that will continue even if the economy does soften in 1990. Even though 22,500 new cars were added last year while 71,000 older cars were retired, the average age of the fleet is close to 16.5 years, and almost half of the total fleet, railroad and private, has been in service for more than 15 years.

—Utilization has gone up. For the 1985-88 period, equipment loadings climb-

Even with modest traffic growth, the fleet must expand

Freight Car Forecast Summary—1986 to 1990

(000 units)

Year	Box-cars	Covered Hoppers	Flat-cars	Gondolas	Open Hoppers	Tank Cars	Other	Total
1986	0.1	2.1	4.8	0.4	1.0	3.6	0.0	12.0
1987	0.1	3.0	4.7	0.1	0.4	5.1	0.0	13.2
1988	0.3	7.3	6.7	1.3	0.6	6.3	0.0	22.5
1989	0.5	8.0	7.0	3.0	4.0	7.0	0.0	29.5
1990	0.5	8.5	7.0	5.0	6.0	7.5	0.0	34.5

Forecasts begin in 1989

Source: American Railway Car Institute
Economic Consulting & Planning, Inc.

ed 12% but the average number of car trips per year increased by 24%. This suggests, ECAP says, that "a significant portion of the cars in the fleet are 'older' than their calendar age, and approaching the end of their 'useful' life."

—The number of cars listed as "surplus" remains at about 50,000 units. But, like a number of other analysts, ECAP questions whether that's a "real" surplus, since "we are of the opinion that the bulk of these cars are in less than prime operating condition."

ECAP's view of economic activity is that 1989 will come in at a 3.4% increase in real GNP, with some tailing-off toward year-end. That would follow a 3.9% advance in real GNP last year. The industrial sector continues to look reasonably strong, with a forecast increase of 4% in manufacturing activity, down slightly from 6% in 1988. Housing starts are expected to continue to slide, but by 3% this year instead of the 10% declines recorded in each of the past two years.

For next year, ECAP sees weakness in both business and consumer spending, and "a further maturing of the export expansion." Moderate growth is expected to continue in key overseas economies, but "the ability of U.S. companies to further penetrate foreign markets will be limited." Real economic growth, ECAP believes, will rise by only 1.6% for the year as a whole.

In analyzing the rail industry specifically, ECAP's researchers ran into an immediate problem with AAR data. Commodity carloadings were reported as 22,140,000, up by 4.8% from 1988. But equipment loadings were reported as 20,825,000 down by 1.7% from '88. That wide disparity, ECAP says, appears to have resulted from

reporting problems at one major railroad, CSXT, and so in trying to analyze loadings by car type, ECAP excluded CSXT and cross-referenced the results with 1988 key commodity loadings that would apply to specific car types.

Then, in trying to look ahead at commodity loadings, factoring in the broad economic projections, ECAP came up with its forecast of a 1.5% increase in commodity loadings this year, followed by a 1.2% decline in 1990.

For 1989, the analysts see gains in nine of 18 commodity categories but with no category topping 5% except motor vehicles, up by 5.1%. For 1990, ECAP sees increases for only six commodity groups, coal, petroleum products and four groups related to the agricultural sector. No category shows a projected gain of more than 2%.

All of these analyses lead to ECAP's forecasts of carbuilding by car type.

—Boxcar traffic is expected to continue to decline. Thanks to over-buying a decade or so ago, today's fleet is relatively young, and the surplus remains at about 6% of the fleet. ECAP does not see 1989-90 orders deliveries of more than about 500 cars, most of them equipped cars for handling such commodities as auto parts and paper products.

—By contrast, ECAP sees signals that "replacement pressure is mounting, and some fleet expansion is in the offing" for covered hopper cars. The chemicals and plastics industries have major expansion plans, researchers note, and if the agricultural sector returns to more normal growing conditions, these factors should lead to an increase in new equipment demand. In

addition, 25% of the covered hopper fleet has been in service for 20 or more years, utilization has increased by about 28% in the 1986-88 period (thus "aging" the fleet still further), and the surplus represents just 2% of the fleet. The principal demand, ECAP believes, will be for cars of 4,000-cubic foot capacity and up. Total new-car installations are forecast at 8,000 cars this year and 8,500 cars in 1990.

—Many of the same factors apply to flat-cars, in large part because of the age utilization factors but also because ECAP sees flatcar traffic increasing in 1989 and remaining above 1988 levels next year despite weakness in some commodities and markets. The projection is for deliveries of 7,000 cars this year and next, with more than 75% represented by intermodal units.

For gondolas, ECAP sees at least a modest replacement market developing, along with a modest absolute increase in the GT-type fleet of coal cars. This translates to a forecast of 3,000 units installed in 1989 and 5,000 in 1990.

Deliveries of open-top hopper cars may be somewhat higher, 4,000 cars this year and 6,000 in 1990. ECAP is forecasting a 4% increase in coal traffic this year, and an over-all increase of 2% in open-top loadings. Loadings for 1989-90 are expected to average about 9% above the annual average for the 1984-88 period and this forecast, coupled with actual fleet age and increased wear-and-tear from improved utilization, should support the car-demand forecast.

—During the carbuilding recession, tank cars accounted for a large part of what activity there was, and ECAP sees the market remaining relatively strong. Comparing 1989-90 with 1984-88, ECAP sees tank car loadings running about 14% higher on an average annual basis. This, combined with expansion in the chemicals industry and a look at what has happened to fleet-age despite recent additions, leads ECAP to a forecast of 7,000 tank-car installations this year and 7,500 in 1990.

Compared with carbuilding levels of a decade ago, the most optimistic forecasts of today seem modest, and ARCT's are less optimistic than ECAP's.

But for railcar manufacturers and for rail shippers, the trends are pointing in the right direction. ■